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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/511,492	10/15/2004	Matthias Muth	DE02 0097 US	4584

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EXAMINER

AMRANY, ADI

ART UNIT	PAPER NUMBER
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2836

NOTIFICATION DATE	DELIVERY MODE
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01/23/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ip.department.us@nxp.com

Office Action Summary	Application No. 10/511,492	Applicant(s) MUTH, MATTHIAS	
	Examiner ADI AMRANY	Art Unit 2836	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 December 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 November 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to the rejection(s) of claim(s) 1-6 under APA and Tamai have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of APA, Tamai and Kawaguchi (US 5,793,189).

Tamai shows a logic circuit (110) for controlling the on/off operation of a converter (120). One skilled in the art would recognize that the logic circuit must receive operating power from somewhere. Tamai solves this problem by attaching the logic circuit to a secondary battery (13), as the Tamai logic only requires a lower voltage to operate. The secondary battery is recharged by the primary battery (12) through the DC/DC converter, which is controlled by the logic circuit. Thus, the Tamai logic circuit is indirectly connected to the DC input voltage in order to keep its power supply charged by operating the DC/DC converter.

The Examiner agrees with applicant that the Tamai logic circuit is not directly connected to the DC input voltage (i.e. the voltage input to the converter). Kawaguchi discloses that a DC/DC converter (6) includes logic to turn the converter on/off (col. 5, lines 38-44). Kawaguchi further discloses that the DC input voltage is connected to the high voltage input node of the controller (HVI) and to the logic circuit input (ST) via a starting circuit (18; col. 6, lines 57-65). Therefore, Kawaguchi shows that it is known to power converter logic circuitry directly via the converter DC input voltage. This connection scheme meets the limitation of "coupled to receive the DC input voltage."

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The source of logic circuit power is secondary to its overall functionality (controlling the converter). Selecting the source of input power for the logic circuit from the possible DC voltages available in the vehicle would be an obvious design choice.

Drawings

2. Replacement figure 1-2 were received on November 24, 2008. These drawings are acceptable and were entered with the filing of applicant's After Final amendment.

Claim Objections

3. Claim 5 is objected to because "input" (line 8) should be "output." The circuit elements are powered by the DC output voltages.

4. Claim 14 is objected to because there is no basis for the limitation of "the logic circuit." Claim 13 recites "control circuitry."

Appropriate correction is required.

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/24/2008 has been entered.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admitted prior art ("APA", specification, page 1) in view of Tamai (US 6,580,180) and Kawaguchi (US 5,793,189).

With respect to claim 1, APA discloses a circuit arrangement for a vehicle for generating at least two DC output voltages from at least one DC input voltage, wherein the DC output voltages are smaller than the DC input voltage, the circuit arrangement comprising: a voltage regulator for generating the DC output voltages from a voltage regulator input; a DC/DC converter for converting the DC input voltage to a lower voltage (page 1, lines 7-19). APA states that it is known from the state of the art to arrange a DC/DC converter preceding "such circuit arrangements." The circuit arrangements refers to page 1, lines 3-4, where APA states that voltage regulators are provided to generate Dc output voltages (plural).

APA does not expressly disclose the DC/DC converter can be switched on and off and that the logic circuit is powered by the DC input voltage.

Tamai discloses a circuit arrangement for a vehicle (fig 1; col. 4-5) for generating at least two DC output voltages (14n), wherein the DC input voltage (outputs of 10, 12) is applied to a DC/DC converter (120; col. 5, lines 37-46) which can be switched on or

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off by a logic circuit (110; col. 5, lines 19-22) and supplies a lower voltage than the DC input voltage (12v from 42v), wherein the logic circuit switches the DC/DC converter off in response to an idle state in which the set of circuit elements are switched off (col. 6, lines 21-39), the circuit elements (14n) being supplied by the DC output voltages.

APA and Tamai are analogous because they are from the same field of endeavor, namely vehicle power distribution systems. At the time of the invention by applicant, it would have been obvious to one skilled in the art to combine the step-down converter arrangement disclosed in APA with the on/off converter logic disclosed in Tamai in order to reduce power consumption by turning off the converter when it is not needed (Tamai, col. 2, namely lines 56-63).

Kawaguchi discloses a circuit arrangement for a vehicle (fig 1; col. 5-6) comprising a DC/DC converter (6) for converting the DC input voltage to a lower voltage (col. 5, lines 45-55), and a logic circuit (col. 5, lines 38-44) configured to provide the on-off signal to the DC/DC converter, wherein the logic circuit is configured to receive the DC input voltage (via 18; col. 6, lines 57-65) to power the logic circuitry even when the DC/DC converter is switched off. The Kawaguchi logic circuit is inside the converter. The logic circuit recognizes the level of input voltage and turns the converter on/off accordingly.

APA, Tamai and Kawaguchi are analogous because they are from the same field of endeavor, namely vehicle power distribution systems. At the time of the invention by applicant, it would have been obvious to one skilled in the art to combine the arrangements disclosed in APA and Tamai with logic circuit power source disclosed in

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Kawaguchi in order to reduce power consumption by turning off the converter when it is not needed (Kawaguchi, col. 12, lines 20-38).

With respect to claim 2, Tamai (col. 4, lines 48-53) and Kawaguchi (abstract) disclose that the DC input voltage is used for energy supply of the arrangement.

With respect to claims 3-4, it would have been obvious to one skilled in the art to arrange any of the APA, Tamai or Kawaguchi components on an integrated circuit, since it has been held that forming in one piece an article which has formerly been formed in two pieces and put together involves only routine skill in the art. *Howard v. Detroit Stove Works*, 150 U.S. 164 (1893). Placing components on an integrated circuit, as opposed to separate circuit boards, does not appear to affect their overall performance. Placing the components in one location is an aesthetic design choice in order to minimize space and clutter.

With respect to claim 5, APA, Tamai and Kawaguchi disclose the recited integrated circuit, as discussed above in the rejections of claims 1 and 4.

With respect to claim 6, Tamai disclose the DC input voltage has a value of approximately 42 volts (col. 4, lines 48-53) and the voltage supplied by the DC/DC converter has a value of approximately 12 volts (col. 4, lines 54-59). Further, it would be obvious to one skilled in the art to select any suitable input/output voltages for the DC/DC converter based on the end use of the device, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

With respect to claims 7, 10 and 14, Kawaguchi discloses that the logic circuit is powered by the DC input voltage, as discussed above. The independent claims explicitly recite that the logic circuit is powered by receiving the DC input voltage. Thus, the logic circuit would never be powered by the DC/DC converter (on or off).

With respect to claims 8, 12 and 15, APA discloses that it is known in the art to configure the output voltages to be smaller than the lower voltage (the DC/DC converter output)(page 1, lines 1-4).

With respect to claims 9 and 16, Tamai (10) and Kawaguchi (10) disclose a power supply configured to supply the DC input voltage. Further, it is obvious that power in a vehicle must come from “a power supply.” The power input to the DC/DC converter can not be generated without a preceding supply or source.

With respect to claim 11, APA (page 1, lines 7-19) and Kawaguchi (col. 5, lines 45-55) disclose the DC/DC converter provides a lower voltage at the output, as discussed above in the rejection of claim 1.

With respect to claim 13, APA discloses a circuit arrangement comprising a DC/DC converter and a voltage regulator, as discussed above. Tamai discloses control circuitry configured to generate the on-off signal responsive to an idle state in which the circuit elements are switched off. Kawaguchi discloses control circuitry including an input that is configured to receive the DC input voltage to power the control circuit. Claim 13 contains limitations identical to those presented in claim 1, except that claim 13 does not recite that the control circuitry is powered even when the DC/DC converter is switched off. The references are analogous, as discussed above.

With respect to claim 17, Tamai discloses the DC/DC converter turns on and off in response to the state of the circuit elements, as discussed above in the rejection of claim 1.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ADI AMRANY whose telephone number is (571)272-0415. The examiner can normally be reached on Mon-Thurs, from 10am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Elms can be reached on (571) 272-2800 x36. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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AA

/Fritz M Fleming/

Primary Examiner, Art Unit 2836